

SECTION 23 12 13 FACILITY FUEL OIL PUMPS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Fuel oil pumps.

1.02 RELATED WORK

- A. Section 23 05 00: Common Work Results for HVAC
- B. Section 23 11 13: Facility Fuel Oil Piping
- C. Section 23 13 16: Fiberglass, Underground Fuel Oil Storage Tank
- D. Section 23 13 29: Aboveground, Concrete Encased, Fuel Oil Storage Tank
- E. Division 26: Electrical

1.03 SUBMITTALS

- A. Submit manufacturer's product data and installation procedures for review.

1.04 CODES/STANDARDS

- A. Comply with locally adopted and enforced regulations of the Resource Conservation and Recovery Act (RCRA) as amended (September, 1988); including Title VI - "Underground Storage Tanks".
- B. NFPA 30: Flammable and Combustible Liquids Code.
- C. Comply with federal, state and local Environmental Protection Agency guidelines and standards.
 - 1. Obtain all construction and temporary operating permits required by such agencies.
 - 2. Pay for all permits, fees, and licensures necessary for installation and operation of fuel oil piping and systems.

PART 2 - PRODUCTS

2.01 PUMPING SYSTEM

- A. Acceptable Manufacturers:
 - 1. Roper, Viking, Webster, APT
- B. Duplex factory piped and mounted pump packaged to include:
 - 1. Mounting base and oil drip pan
 - 2. Oil pumps
 - 3. Oil pressure relief and regulating valves
 - 4. Drive couplings and guards
 - 5. Back pressure regulating valves
 - 6. Discharge check valves
 - 7. Compound vacuum/pressure gauges
 - 8. Pressure gauges
 - 9. Oil strainers
 - 10. Electric motors
 - 11. Motor starters
 - 12. Control cabinet
 - 13. Pilot light

14. Hand-off-auto switch
15. Shutoff valves to permit transferring from one pump to the other

C. Submersible Pump

1. Acceptable Manufacturer:
 - a. Mechanical Submersible: FE Petro or pre-approved equal.
 - b. Controls: Cougar Controls or pre-approved equal.
2. General: Provide a submersible pump set to provide fuel to a day tank. The pump set shall be integrated with a PLC based control panel to provide motor control with thermal overloads, system status, and alarm indication.
3. Design Criteria:
 - a. Transfer Pumps: Pumps each rated at a minimum of 20 gpm or the design flow as indicated on the drawings. Pump motors shall be as required to provide the design flow and as a minimum shall be 115 vac single phase, 1/3 HP. Motors shall be TEFC. Submersible pump motors shall be 208 vac, 1 phase or 3 phase.
 - b. Submersible pump enclosures at underground tanks shall be watertight fiberglass or polyurethane sumps.
 - c. Control Module - Preferred Utilities: The pump set shall be controlled by Preferred Utilities Plant Wide Controller. The module shall have motor starters with thermal protection and main disconnect operated from the panel interior. The unit shall receive a pump or signal from a 4 float level probe to activate and deactivate the pump set. The unit shall monitor a flow switch in the fuel discharge. A "No Flow" condition for 15 seconds after start of pump 1 shall automatically activate pump 2. The module shall have exterior hand-off-auto mode selector switches for each pump. Indicator lights shall be provided for power on, pump on and flow failure alarm. The controller shall provide automatic alternation of pumps. The controller shall monitor the high high floats and the low low floats for alarm monitoring and annunciation. The high high float shall be hard wired via relay into the supply transfer pump control circuits so that when the high high float trips, the supply pumps will stop regardless of HOA switch position.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Coordinate installation of tanks, pumps, and monitoring system as shown on drawings for a single system.
- B. Install pumping system as shown on drawings.

3.02 START-UP, TESTING AND TRAINING

- A. Pressure test all piping with nitrogen to 100 psi and hold for two hours.
- B. Start-up system in conjunction with boiler and generator test.
- C. Operate system as a complete system with boilers and generators demonstrating operation to maintenance personnel.
- D. Test alarms required by NFPA 99.
- E. Instruct maintenance personnel in system operation and maintenance.

END OF SECTION